

### REMARKS

Claims 1-42 are pending in the present Application, and all claims currently stand rejected. Accordingly, claims 1, 4, 5, 21, 24, 25, 41, and 42 are amended, and new claims 43-45 are added herein. Reconsideration of the Application in view of the foregoing amendments and the following remarks is respectfully requested.

### 35 U.S.C. § 103

On page 2 of the Office Action, the Examiner rejects claims 1, 3, 5, 7-11, 16, 21, 23, 25-27, 36, 41, and 42 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,275,029 to Gao et al, (hereafter Gao) in view of U.S. Patent No. 6,778,952 to Bellagarda (hereafter Bellagarda). The Applicants respectfully traverse these rejections for at least the following reasons.

Applicants maintain that the Examiner has failed to make a *prima facie* case of obviousness under 35 U.S.C. § 103(a) which requires that three basic criteria must be met, as set forth in M.P.E.P. §2142:

"First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations" (emphasis added).

The initial burden is therefore on the Examiner to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a).

Regarding the Examiner's rejection of independent claims 1, 21, 41, and 42, Applicants respond to the Examiner's §103 rejections as if applied to similarly amended independent claims 1, 21, 41, and 42. For example, claim 1 now recites "*initial language models each iteratively created by combining source models according to interpolation coefficients that define proportional relationships for combining said source models; a speech recognizer that utilizes said initial language models to iteratively process input development data in corresponding ones of said speech recognition procedures for calculating word-error rates that each correspond to a different one of said initial language models*" (emphasis added), which are limitations that are not taught or suggested either by the cited references, or by the Examiner's citations thereto.

Gao teaches creating a language model from a "textual corpus" by segmenting the corpus into different "chunks," calculating "perplexity values" for each of the dissimilar chunks, and then recombining certain of the chunks into the language model (see column 3, line 25, through column 4, line 16). However, Gao fails to teach any type of iterative process for creating and choosing from among a plurality of similarly-configured "initial language models" to produce a single "optimized language model," as disclosed and claimed by Applicants.

In particular, Applicants submit that Gao fails to teach iteratively combining "source models" into a plurality of similarly-configured "initial language models,"

as claimed by Applicants. On the contrary, Gao is limited only to adding together the dissimilar “chunks” to produce a single language model without any type of iterative creation and evaluation of multiple “initial language models.”

Furthermore, Applicants submit that Gao fails to teach utilizing a plurality of “interpolation coefficients” for combining the various unlimited numbers of “source models,” as claimed by Applicants. On the contrary, Gao is limited to teaching a technique for combining only two “clusters” by applying a single “alpha” weighting value to one of the two clusters (see column 14, lines 35-45). Applicants therefore submit that Gao fails to teach utilizing multiple “interpolation coefficients,” as claimed by Applicants.

In addition, Applicants submit that Gao fails to teach utilizing a “*a speech recognizer that utilizes said initial language models to iteratively process input development data in corresponding ones of said speech recognition procedures for calculating word-error rates . . .*” (emphasis added). For example, Applicants submit that Gao fails to teach iteratively utilizing any type of “speech recognizer” for any purpose whatsoever.

On page 3 of the Office Action, the Examiner concedes that “Gao does not disclose specifically calculating word-error rates.” Applicants concur. The Examiner then points to Bellagarda to purportedly remedy the foregoing deficiencies in Gao. Applicants respectfully traverse. Bellagarda is limited to teachings regarding the language modeling only of a “document” (see Abstract). Nowhere does Bellagarda disclose any type of speech recognition applications for the language models, as specifically claimed by Applicants. Therefore, Applicants

submit that Bellagarda is nonanalogous art, and is not relevant with respect to Applicants' invention.

Furthermore, although Bellagarda briefly mentions the words "word error rate," Applicants submit there are no specific calculations disclosed. In addition, Applicants submit that Bellagarda fails to teach affirmatively choosing "*an optimized language model selected from said initial language models by identifying an optimal word-error rate from among said word-error rates*" (emphasis added), as claimed by Applicants. For all of the foregoing reasons, Applicants request the Examiner to reconsider and withdraw the rejections of claims 1, 21, 41, and 42.

Regarding the Examiner's rejection of dependent claims 3, 5, 7-11, 16, 23, 25-27, and 36, for at least the reasons that these claims are dependent from respective independent claims whose limitations are not identically taught or suggested, the limitations of these dependent claims, when viewed through or in combination with the limitations of the respective independent claims, are also not identically taught or suggested.

With further regard to the rejections of claim 10 and 30, the Examiner states that certain claimed limitations are "inherent" as support for the rejections without providing any specific references for support. It appears that the Examiner is utilizing Official Notice without expressly stating so. Applicants submit that the particular combination of claimed limitations would not be obvious to one skilled in the art at the time of the invention. Applicants further submit that the Examiner has improperly utilized Official Notice because the cited limitations are uniquely utilized by the Applicants to produce novel combinations

that are not well-known or predictable. Applicants therefore respectfully request the Examiner to cite specific references in support of these rejections, and failing to do so, to reconsider and withdraw the rejections of claims 10 and 30, so that the present Application may issue in a timely manner.

For at least the foregoing reasons, the Applicants submit that claims 1, 3, 5, 7-11, 16, 21, 23, 25-27, 36, 41, and 42 are not unpatentable under 35 U.S.C. §103 over the cited references, and that the rejections under 35 U.S.C. § 103 are thus improper. The Applicants therefore respectfully request reconsideration and withdrawal of the rejections of claims 1, 3, 5, 7-11, 16, 21, 23, 25-27, 36, 41, and 42 under 35 U.S.C. § 103.

On page 6 of the Office Action, the Examiner rejects claims 6 and 26 under 35 U.S.C. § 103 as being unpatentable over Gao and Bellagarda in view of U.S. Patent No. 6,151,575 to Newman et al. (hereafter Newman). The Applicants respectfully traverse these rejections for at least the following reasons.

Applicants maintain that the Examiner has failed to make a *prima facie* case of obviousness under 35 U.S.C. § 103(a). As discussed above, for a valid *prima facie* case of obviousness under 35 U.S.C. § 103(a), the prior art references when combined must teach or suggest all the claim limitations." The initial burden is on the Examiner to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a).

Regarding the Examiner's rejection of dependent claims 6 and 26, for at least the reasons that these claims are directly or indirectly dependent from

respective independent claims whose limitations are not identically taught or suggested, the limitations of these dependent claims, when viewed through or in combination with the limitations of the respective independent claims, are also not identically taught or suggested.

With further regard to the rejections of claims 6 and 26, the Examiner concedes that “Gao or Bellagarda do not disclose specifically . . . each of said source models corresponds to a different application domain that is related to a particular speech environment.” Applicants concur. The Examiner then points to Newman to purportedly remedy the foregoing deficiencies in Gao and Bellagarda. Applicants respectfully traverse. Newman states only that “[s]ources of speech data include particular speakers or groups of related speakers” (emphasis added). Applicants submit that a grouping of related speakers is based only upon speech characteristics of the speakers, and therefore is not “related to a speech environment” (emphasis added), as claimed by Applicants.

For at least the foregoing reasons, the Applicants submit that claims 6 and 26 are not unpatentable under 35 U.S.C. § 103 over the cited references, and that the rejections under 35 U.S.C. § 103 are thus improper. The Applicants therefore respectfully request reconsideration and withdrawal of the rejections of claims 6 and 26 under 35 U.S.C. § 103.

On page 7 of the Office Action, the Examiner rejects claims 2, 4, 12, 13, 17-20, 22, 24, 32, 33, and 37-40 under 35 U.S.C. § 103 as being unpatentable over Gao and Bellagarda in view of U.S. Patent No. 6,418,431 to Mahajan et al.

(hereafter Mahajan). The Applicants respectfully traverse these rejections for at least the following reasons.

Applicants maintain that the Examiner has failed to make a *prima facie* case of obviousness under 35 U.S.C. § 103(a). As discussed above, for a valid *prima facie* case of obviousness under 35 U.S.C. § 103(a), the prior art references when combined must teach or suggest all the claim limitations." The initial burden is on the Examiner to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a).

Regarding the Examiner's rejection of dependent claims 2, 4, 12, 13, 17-20, 22, 24, 32, 33, and 37-40, for at least the reasons that these claims are dependent from respective independent claims whose limitations are not identically taught or suggested, the limitations of these dependent claims, when viewed through or in combination with the limitations of the respective independent claims, are also not identically taught or suggested.

With further regard to the rejections of claims 2, 4, 12, 13, 17-20, 22, 24, 32, 33, and 37-40, the Examiner concedes that "Gao or Bellagarda do not disclose specifically . . . said word-error rates are calculated by comparing a correct transcription of said input development data and a top recognition candidate from an N-best list that is rescored for each of said initial language models." Applicants concur. The Examiner then points to Mahajan to purportedly remedy the foregoing deficiencies in Gao and Bellagarda. Applicants respectfully traverse.

Mahajan discloses only a basic process for choosing “among the N-best hypotheses in order to obtain the most likely word . . . .” Applicants submit that simply choosing a “most likely word” is not analogous to the significantly more detailed process of calculating word-error rates by “comparing a correct transcription of said input development data and a top recognition candidate from an N-best list that is rescored for each of said initial language models” (emphasis added), as claimed by Applicants.

For at least the foregoing reasons, the Applicants submit that claims 2, 4, 12, 13, 17-20, 22, 24, 32, 33, and 37-40 are not unpatentable under 35 U.S.C. § 103 over the cited references, and that the rejections under 35 U.S.C. § 103 are thus improper. The Applicants therefore respectfully request reconsideration and withdrawal of the rejections of claims 2, 4, 12, 13, 17-20, 22, 24, 32, 33, and 37-40 under 35 U.S.C. § 103.

On page 12 of the Office Action, the Examiner rejects claims 14, 15, 34, and 35 under 35 U.S.C. § 103 as being unpatentable over Gao and Bellagarda in view of U.S. Patent Publication No. 2004/0199385 to Deligne et al. (hereafter Deligne). The Applicants respectfully traverse these rejections for at least the following reasons.

Applicants maintain that the Examiner has failed to make a *prima facie* case of obviousness under 35 U.S.C. § 103(a). As discussed above, for a valid *prima facie* case of obviousness under 35 U.S.C. § 103(a), the prior art references when combined must teach or suggest all the claim



limitations." The initial burden is on the Examiner to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a).

Regarding the Examiner's rejection of dependent claims 14, 15, 34, and 35, for at least the reasons that these claims are directly or indirectly dependent from respective independent claims whose limitations are not identically taught or suggested, the limitations of these dependent claims, when viewed through or in combination with the limitations of the respective independent claims, are also not identically taught or suggested.

With further regard to the rejections of claims 14, 15, 34, and 35, the Examiner concedes that "Gao or Bellagarda do not disclose specifically" the substitutions, insertions, and deletions of words that may be used to calculate word error rates. Applicants concur. The Examiner then points to Deligne to purportedly remedy the foregoing deficiencies in Gao and Bellagarda. Applicants respectfully traverse. Deligne discloses only a substitution rate, a deletion rate, and an insertion rate for phones to calculate an "overall phone error rate" (page 4, paragraph 0045). This is different than the "substitutions, insertions, and deletions of words" (emphasis added), as claimed by Applicants.

For at least the foregoing reasons, the Applicants submit that claims 14, 15, 34, and 35 are not unpatentable under 35 U.S.C. § 103 over the cited references, and that the rejections under 35 U.S.C. § 103 are thus improper. The Applicants therefore respectfully request reconsideration and withdrawal of the rejections of claims 14, 15, 34, and 35 under 35 U.S.C. § 103.

### New Claims

The Applicants herein submit additional claims 43-45 for consideration by the Examiner in the present Application. The new claims 43-45 recite specific detailed embodiments for implementation and utilization of Applicants' invention, as disclosed and discussed in the Specification. Applicants submit that newly-added claims 43-45 contain a number of limitations that are not taught or suggested in any of the cited references.

In particular, Applicants submit that cited references fail to teach "wherein said different application domain alternately includes any of a news domain, an Internet domain, a financial information domain, and a spontaneous speech domain," as recited in dependent claim 43. Applicants also submit that cited references fail to teach "wherein said source models may include any number of different individual language models," as recited in dependent claim 44.

Applicants further submit that cited references fail to teach "wherein said source models are implemented as finalized language models that are individually capable of being separately utilized for performing said speech recognition procedures before being combined to produce said initial language models," as recited in dependent claim 45. For all the foregoing reasons, Applicants therefore respectfully request the Examiner to consider and allow new claims 43-45.

### Examiner Interview Summary

On January 7, 2008, Applicants' representative, Gregory Koerner, held an Examiner's Interview with Examiner Josiah Hernandez to discuss various differences between the cited references and Applicants' claimed invention. Applicants argued that the cited references fail to teach any type of iterative process for creating and choosing from among a plurality of similarly-configured "initial language models" to produce a single "optimized language model," as disclosed and claimed by Applicants.

Furthermore, Applicants argued that the cited references fail to teach utilizing a plurality of "interpolation coefficients" for combining the various unlimited numbers of "source models," as claimed by Applicants. On the contrary, Gao is limited to teaching a technique for combining only two "clusters" by applying a single "alpha" weighting value to one of the two clusters (see column 14, lines 35-45). In addition, Applicants argued that Gao fails to teach utilizing a "*a speech recognizer that utilizes said initial language models to iteratively process input development data in corresponding ones of said speech recognition procedures for calculating word-error rates . . .*" (emphasis added).

### Summary

Applicants submit that the foregoing amendments and remarks overcome the Examiner's rejections under 35 U.S.C. §103(a). Because the cited references, or the Examiner's citations thereto, do not teach or suggest the claimed invention, and in light of the differences between the claimed invention and the cited prior art, Applicants therefore submit that the claimed invention is patentable over the cited art, and respectfully request the Examiner to allow claims 1-45, so that the present Application may issue in a timely manner. If there are any questions concerning this Response, the Examiner is invited to contact the Applicants' undersigned representative at the number provided below.

Respectfully submitted,

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